

How these factors can be made to exert the most beneficent influence will depend to a large extent on the intelligence, understanding, and emotional adjustment of those controlling the lives of the various individual children.

RÔLE OF THE PEDIATRICIAN

The rôle for which the pediatrician must prepare himself is that of an external environmental force, acting both directly and indirectly. Directly, during his frequent contacts with the growing child; indirectly, by his advice to the parents, particularly in relation to the *prevention* of emotional disturbances. To do this job effectively, he must not only know the child well, but also the total environment into which the child has inescapably entered.

In his contacts with his little patients, he must always be extremely patient, kindly, gentle, and resourceful in his approach. This not only wins the confidence of child and parent, but also helps to teach the parents the art of handling children.

The mother returning home from the hospital with her new baby is beset with new and frightening experiences, not to mention inexhaustible poor advice by neighbors and fond relatives. It becomes our duty to give thoughtful and kindly consideration to all her little worries until the trivial matters become trivial in her mind, because upon the establishment of an emotionally stable atmosphere in the home depends the prevention of most of the emotional disturbances of the young child.

Dewey, the great philosopher, has told us that "no experience is lost." Let us learn to point out to parents which are the beneficent experiences, and which are the harmful ones.

With the world "going mad" around us, what can possibly be a more important goal than the rearing of a new generation of people, sound in mind and emotionally stable? To bring this about, we must start our efforts with the infant.

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EPIDERMOPHYTOSIS TREATED WITH SODIUM BORATE*

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ANYONE who knows how difficult it is to cure even common forms of epidermophytosis will feel justified in searching for new remedies. The mere multitude of fungicides available and in use today would indicate that there is no one specific treatment for epidermophytosis or athlete's foot infection. An enormous amount of work has been done, both clinically and in the laboratory. Beyond question, the best fungicide known is iodine in various concentrations. This, however, is an inconvenient drug which causes much irritation, and in many instances produces dermatitis venenata.

When Dr. George L. Browning pointed out to me, in an oral communication, that Southern Cali-

fornia shows a high boron content of the soil, and that citrus and walnut trees suffer much from the same, my attention was drawn to the possible effect of boron on fungi. Should one classify fungi as a plant, the same laws would apply approximately for the fungi as for trees. A minimum amount of boron is absorbed and is stimulating for the growth of trees; but when the concentration reaches a high value the leaves become discolored and finally the trees die. It has been found¹ that irrigation water which contains 1 p. p. m. of boron will ultimately produce more or less injury. Voelcker² (1910) reports that any concentration over 0.001 per cent of B, whether as boric acid or sodium borate, prevented wheat and barley plants from developing and forming grain.

CLINICAL MATERIAL

The present series are taken from cases treated by me at Stanford Medical School, San Francisco General Hospital, and Franklin Hospital, over a period of one and a half years. To my knowledge no one else has employed this type of treatment.

Picking out some test cases first, I was quickly convinced that boron in its form of sodium borate is very effective in the treatment of epidermophytosis of the feet. Various concentrations were tried out, but I shall report only the results concerning a constant concentration of sodium borate. A uniform percentage of 33 per cent in powder form, and 2 per cent in soaks, was used in this series. Only cases presenting the typical dry or average vesicular form of epidermophytosis of the feet were chosen. The same holds for tinea cruris and epidermophytosis of the anal region and axilla. Since the raw, weeping and denuded types showed a variable reaction, they have not been included in this series.

In spite of the fact, which has been pointed out by many authorities, that cultures for fungi show an optimum at the pH of between five and seven,³ it was thought that an outright alkaline reaction might be valuable in eradicating the fungi. The powder form was, therefore, made up with 20 per cent aluminum silicate (kaolin) and 10 per cent magnesium carbonate, for hygroscopic effect as well, made up in a talcum base. The soaks were administered in the form of foot or sitz baths. In a few cases of epidermophytosis corporis reported, sodium borate was used in an average of one cup to a tubful of water, with soaks ten minutes daily, once daily.

Altogether two hundred and two patients were treated, including cases of epidermophytosis of the feet, groins, axilla, anal region, and the body. Naturally, the time for cure will vary much with the various sites, depending on moisture, friction, mechanical factors such as rubbing, etc. The dry, scaly type with the vesicular element responded best. Of 202 uncomplicated foot cases, 138 were proclaimed cured after an average healing time of seventeen days. Sixty-four cases were greatly improved when last seen, but did not return for check-up. The average healing time for the groin, anal region, and axilla would naturally be much higher. As a total, all cases together healed in an

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average of twenty-nine days, with the extremes lying between seven days and ninety days. Contrary to expectations, none of them showed dermatitis venenata, a thing which one would expect with the strongly alkaline reaction of sodium borate, aluminum silicate, and magnesium carbonate. No irritation was found. Universally the patients stated a beneficial effect in their itching symptoms.

COMMENT

I take the definite stand that this type of treatment should be reserved for the dry or completely uncomplicated cases. It still remains to demonstrate in the future how well the average results will show up when eczematous changes are included, *i. e.*, raw, denuded areas and weeping dermatitis venenata.

This type of treatment offers great advantage in producing prolonged exposure to a fungicide which, in itself, seems to be physiological in its action on the fungus, namely, sodium borate. Theoretically the fungus would absorb this chemical up to saturation point, which has not been accurately decided upon.

The combination of sodium borate with hygroscopic powders eliminates moisture which favors growth of fungi. The addition of talcum is observed to support the same. The use of soaks facilitates the quick absorption of the chemical by the fungus and penetration of dead tissue. Presumably, normal skin tissue does not absorb boron; only dead, desquamating epithelium. The alkaline reaction, together with the inherent quality of the chemical and the drying effect will all three combine together in favor of healing. In order to confirm the clinical results, a few cultures were inoculated on routine Sabouraud's medium and treated with sodium borate 1-100, 1-1000, and 1-10,000. It seemed obvious that the sodium borate-treated media inhibited growth in comparison with non-treated media which favored normal growth. Too small a series, however, is available for accurate estimation of this side and will be supplemented later on.

In this series are cases which were previously treated by other means and methods, with ill effects or no results. It seems certain, however, that a judicious application of this treatment, even in complicated cases, acts well. Also, here I should like to add that only the skilled dermatologist who can judge each individual case should attempt the complicated cases. For example, where pruritus ani or vulva were present I wish to emphasize the unquestionable value of this treatment schedule added to other known approaches, such as x-ray, etc. Unnecessary to say that a condition like pruritus vulva would have lichenification and secondary effects besides its own etiology, which would require a definite approach. Weeping eczemas would require alleviation of the acute symptoms first.

Other variations and additions of boron preparations were found unfavorable in comparison. Sodium perborate, as found in commercial powders,

did not add to the fungi-static power of this régime; it would tend to irritate the treated areas. Other commercial powders claim their action from the alkaline reaction they possess.

One factor should be clearly understood: that many patients show a constant tendency to recurrence of their once-healed infections. Some physicians even go so far as to state that an epidermophytosis will never be 100 per cent healed, but will continue for the rest of a person's life.

SUMMARY

1. Two hundred and two cases of epidermophytosis of the feet, groins, anal region and axilla, as well as the body, have been treated with sodium borate in powder form and soaks.

2. The response, comparing very favorably with hitherto known methods, is reported.

3. For the chronic forms of epidermophytosis of the feet, groins, and axilla, it seems a method of choice.

4. No instance of dermatitis venenata was encountered in the uncomplicated cases.

5. This method used in complicated, eczematous and weeping forms should be applied with extreme caution, and only in the hands of the experienced dermatologist.

6. Epidermophytosis of the skin folds, excluding the feet, shows a longer healing course, although comparing very favorably with other methods in use.

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PREMATURE OBSTETRICAL DELIVERY DUE TO POLIOMYELITIS*

WITH RESPIRATORY PARALYSIS COMPLICATION

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BECAUSE of the unusual circumstances associated with the successful termination of a spontaneously premature labor, this report is submitted in order to render an opinion regarding the advantages of a properly developed chest respirator for any case of respiratory paralysis

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